Common Energy Units Conversion and Other Commodities Review

Robert Kronebusch (ONRR)

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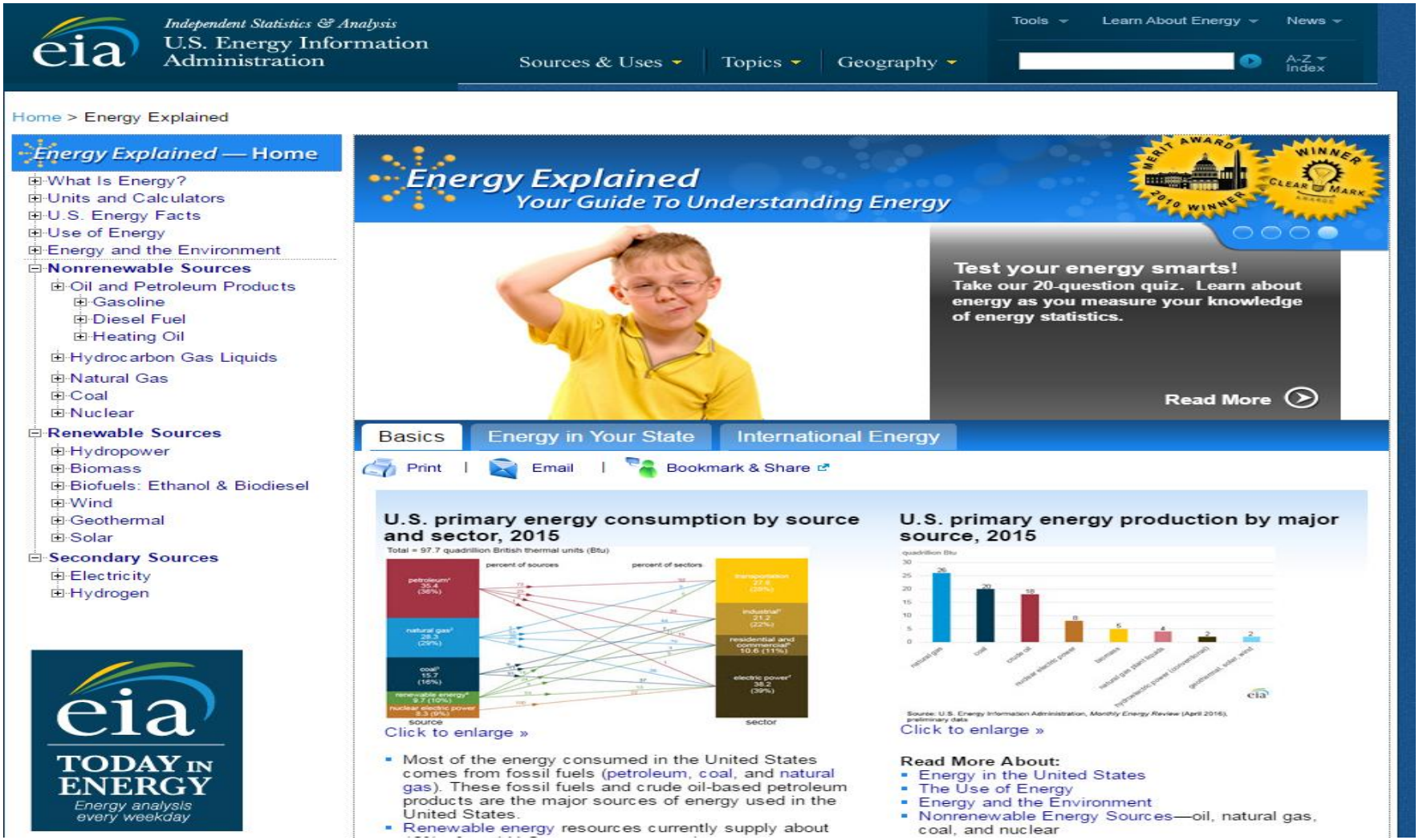
“Energy Explained “ from EIA website



Source: http://www.eia.gov/energyexplained/index.cfm

Btu content of common energy units

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British thermal unit: The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density - approximately 39 degrees Fahrenheit.

- 1 barrel (42 gallons) of crude oil = 5,729,000 Btu
- 1 gallon of gasoline = 120,405 Btu
- 1 gallon of diesel fuel = 137,381 Btu
- 1 gallon of heating oil = 138,500 Btu
- 1 barrel of residual fuel oil = 6,287,000 Btu
- 1 cubic foot of natural gas = 1,032 Btu
- 1 gallon of propane = 91,333 Btu
- 1 short ton (2,000 pounds) of coal = 19,882,000 Btu
- 1 kilowatthour of electricity = 3,412 Btu
- 1 therm = 100,000 Btu
- 1 cord of wood = 20,000,000 Btu

One Btu is approx. equal to the energy released by burning a wooden stick match.

Source: http://www.eia.gov/energyexplained/index.cfm?page=about_energy_units

Electricity Units of Measurement

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Kilowatthours (kWh) = 1,000 (One Thousand) Watthours
Megawatthours (MWh) = 1,000,000 (One Million) Watthours
Gigawatthours (GWh) = 1,000,000,000 (One Billion) Watthours
Terawatthours (TWh) = 1,000,000,000,000 (One Trillion) Watthours

How much coal, natural gas, or petroleum is used to generate a kilowatthour of electricity?

Amount of fuel used to generate 1 kWh:

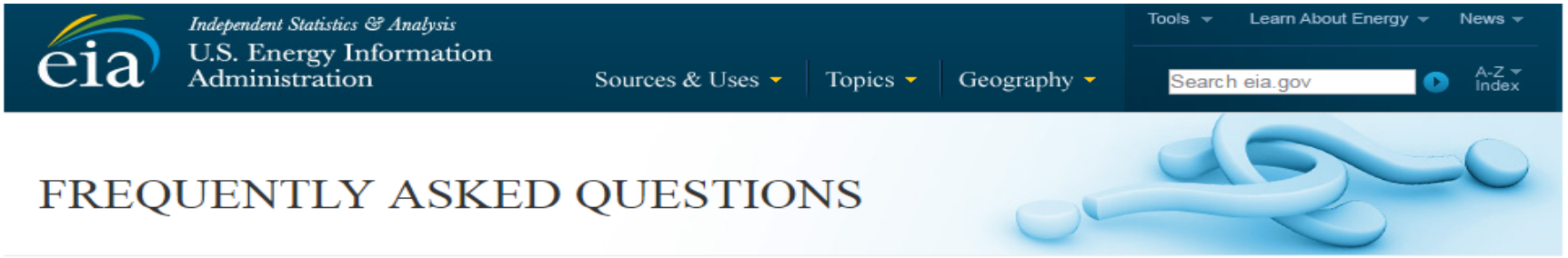
- Coal = 0.00052 short tons or 1.04 pounds
- Natural gas = 0.01011 Mcf (an Mcf equals 1,000 cubic feet)
- Petroleum = 0.00173 barrels (or 0.07 gallons)

Kilowatthour generated per unit of fuel used:

- 1,927 kWh per ton, or 0.96 kWh per pound of coal
- 99 kWh per Mcf (1,000 cubic feet) of natural gas
- 578 kWh per barrel, or 13.76 kWh per gallon of petroleum

Source: http://www.eia.gov/tools/faqs/faq.cfm?id=667&t=3

FAQs on EIA website



Coal

- Does EIA have county-level energy production data?
- Does EIA have projections for energy production, consumption, and prices for individual states?
- Does EIA publish coking coal prices?
- From what country does the United States import the most coal?
- How do I convert between short tons and metric tons?
- How large are U.S. coal reserves?
- How many power plants are there in the United States?
- How much coal, natural gas, or petroleum is used to generate a kilowatthour of electricity?
- To what country does the United States export the most coal?
- What are the different coal prices published by EIA?
- What is the average heat content of U.S. coal?
- What types and amounts of energy are produced in each state?
- Which states produce the most coal?

Conversion & Equivalents

- How do I compare the cost of heating fuels?
- How do I convert between short tons and metric tons?
- How do I convert data in one unit of measure to a different unit of measure?
- What are Ccf, Mcf, Btu, and therms? How do I convert natural gas prices in dollars per Ccf or Mcf to dollars per Btu or therm?

On This Page:

Source: http://www.eia.gov/tools/faqs/

USGS Commodity Data

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The ***Commodity Statistics and Information*** in the following slides are from the ***USGS National Mineral Information Center*** at this website. https://minerals.usgs.gov/minerals/pubs/commodity/

The 2015 production volumes are estimates as shown in the 2016 ***Mineral Commodity Summaries***. The major producing companies were chiefly identified from the 2014 ***Minerals Yearbooks***.

Domestic production data is collected by USGS from voluntary surveys, other federal and state agency reports, company reports, and other publicly available information.

Some data results from my analysis of companies paying ***BLM Permit Fees*** for ***Locatable Minerals*** in CY2015 and also from some research of company websites.

Gold

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In 2015, gold production was ~ 200 metric tons, valued at ~ $7.6 billion. Gold was produced at about 45 lode mines, at several large placer mines in Alaska, and numerous smaller placer mines, mostly in Alaska and in the Western States. About 7% of domestic gold was recovered as a byproduct of processing domestic base-metal ores, chiefly copper. The top 29 operations, mostly in Nevada, yielded more than 99% of the mined gold in the U.S.

Major producers: Barrick Gold Corp., Newmont Mining Corp., Kinross Gold USA Inc., Sumitomo Co., Kennecott (Rio Tinto) Utah Copper Corp., Allied Nevada Gold Corp., Veris Gold Corp., New Gold Inc., Coeur Mining Inc., Hecla Mining Co., Freeport-McMoRan Copper & Gold Inc., Klondex Mines Ltd, Waterton Global Mining Co., KGHM International Ltd., and Atna Resources Ltd.

Silver

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In 2015, silver production was ~ 1,100 tons, valued at ~ $560 million. Silver was produced at 3 mines and as a byproduct or co-product from 37 domestic base- and precious-metal mines. Alaska is the country's leading silver-producing state, followed by Nevada.

Major producers: Hecla Mining Co., Coeur Mining Inc., Teck Resources Ltd, Scorpio Mining Corp., Newmont Mining Corp., Americas Silver Corp., Kennecott (Rio Tinto) Utah Copper Corp., Klondex Mines Ltd, Allied Nevada Gold Corp., Clover Nevada LLC, and Agnico-Eagle USA Ltd.

Copper

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In 2015, ~ 1.25 million metric tons of copper, valued at ~ $7.6 billion, was produced at 26 mines, 18 of which accounted for about 99% of production. Arizona, New Mexico, Utah, Nevada, Montana, and Michigan—in descending order of production—accounted for more than 99% of domestic mine production; copper also was recovered in Idaho and Missouri.

Major producers: Freeport-McMoRan Copper & Gold Inc., ASARCO, Kennecott (Rio Tinto) Utah Copper Corp., Capstone Mining Corp., KGHM International LTD, Lundin Mining Corp., Origin Mining Co., and Revett Minerals Inc.

Molybdenum

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In 2015, ~ 56.3 million metric tons of molybdenum, valued at ~ $1.0 billion, was produced at 10 mines. Molybdenum ore was produced as a primary product (44%) at two mines in Colorado, whereas eight copper mines (five in Arizona, one each in Montana, Nevada, and Utah) recovered molybdenum as a byproduct (56%).

Major producers: Freeport-McMoRan Copper & Gold Inc., Thompson Creek Metals (acquired by Centerra Gold Inc. in 2016), Kennecott (Rio Tinto) Utah Copper Corp., Montana Resources LLP, Mercator Minerals, Ltd., and Quadra FNX Mining Ltd.

Lead and Zinc

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In 2015, ~ 385,000 metric tons of **lead**, valued at ~ $790 million, was produced at 6 lead mines in Missouri; and 5 mines in Alaska, Idaho, and Washington produced lead as a coproduct, accounting for all domestic lead mine production.

Major producers: Doe Run Resources Corp., Teck Resources Ltd, and Hecla Mining Co.

In 2015, ~ 850,000 metric tons of **zinc** from concentrates, valued at ~ $1.78 billion, was produced from 15 mines in 5 states; Alaska, Tennessee, Missouri, Idaho, and Washington.

Major producers: Teck Resources Ltd, Doe Run Resources Corp., Hecla Mining Co., and Nyrstar NV.

Iron Ore

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In 2015, iron ore production was ~ 42.5 million metric tons, valued at ~ $3.8 billion. Twelve iron ore mines (nine open pits and three reclamation operations) in Michigan and Minnesota shipped 98% of the usable iron ore products in the U.S.

Major producers: Cliffs Natural Resources Inc., ArcelorMittal S.A., US Steel, Mining Resources LLC, and Essar Steel Minnesota LLC.

? QUESTIONS ?